

What works in inclusion health: overview of effective interventions for marginalised and excluded populations



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Inclusion health is a service, research, and policy agenda that aims to prevent and redress health and social inequities among the most vulnerable and excluded populations. We did an evidence synthesis of health and social interventions for inclusion health target populations, including people with experiences of homelessness, drug use, imprisonment, and sex work. These populations often have multiple overlapping risk factors and extreme levels of morbidity and mortality. We identified numerous interventions to improve physical and mental health, and substance use; however, evidence is scarce for structural interventions, including housing, employment, and legal support that can prevent exclusion and promote recovery. Dedicated resources and better collaboration with the affected populations are needed to realise the benefits of existing interventions. Research must inform the benefits of early intervention and implementation of policies to address the upstream causes of exclusion, such as adverse childhood experiences and poverty.

Introduction

Inclusion health is an emergent approach that aims to address extreme health and social inequities. Target populations have common adverse life experiences and risk factors such as poverty and childhood trauma that lead to social exclusion.¹ Consequently, these populations have extremely poor health, multiple morbidity, and early mortality.² Compounding these problems are numerous barriers to accessing health services.³ The key aims of the inclusion health agenda are to highlight the magnitude and consequences of extreme inequity, the need for preventive and early intervention approaches, and improved access to essential services for individuals harmed by exclusion.

An agreed conceptual framework for inclusion health has not yet been developed.² In this Review, we employ existing social exclusion,⁴ intersectionality,^{5,6} and life-course epidemiology⁷ perspectives, which examine how factors accumulate and intersect over time and affect health. Risk factors such as substance use, rough sleeping, imprisonment, and exchanging sex for money or drugs are known to overlap among populations that are socially excluded¹ and lead to extremely poor health outcomes.² This underscores the need to better understand what interventions can effectively address and prevent the multiple and complex needs of socially excluded populations as a whole, rather than focusing on subpopulations defined by singular risk factors. Our Review aims to provide an overview of which individual and structural interventions are effective to tackle the extreme health needs of inclusion health target populations.

We defined the Review operationally using the populations, interventions, comparators, outcomes⁸ method. Populations with histories of substance use disorders (excluding alcohol, cannabis, and tobacco), imprisonment, sex work, and homelessness in high-income countries were identified as target populations on the basis of previous research in the UK, which

showed a high degree of overlap between these groups^{1,6} and the need to coordinate services for them.⁹ Other important excluded groups, such as migrants and transgender populations, were beyond the scope of this

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Search strategy and selection criteria

We reviewed the systematic review literature to provide an overview of effective interventions that directly affect health (eg, pharmacology, counselling, screening, prevention) or the wider determinants of health (eg, housing, social support, training and education, employment, crime, and recidivism). This enabled summation of a broad literature base that would not have been feasible if we had reviewed primary studies. We searched MEDLINE, Embase, PsychINFO, CINAHL, the Cochrane Collaboration Library, and Web of Science for systematic reviews, with and without meta-analysis, of any intervention for inclusion health target populations in high-income countries published in English between Jan 1, 2005, and June 16, 2015. The search terms used for MEDLINE were as follows: (exp treatment outcome/ OR exp program evaluation/ OR exp outcome assessment (health care)/ OR exp randomized controlled trials) AND (exp substance abuse, intravenous/ OR exp substance related disorders/ OR exp vulnerable populations/ OR exp prisoners/ OR exp homeless persons/ OR exp sex workers/ OR exp drug users/ OR exp prostitution/) AND (systematic review.ti OR meta analysis.ti OR systematic review.ab OR meta analysis.ab); Limit Humans, 2005—current (June 16, 2015). Full search terms are listed in the appendix. We also considered systematic reviews recommended by expert authors. SL screened the titles and abstracts using the populations, interventions, comparators, outcomes (PICO) selection criteria: populations with histories of substance use disorders (excluding alcohol, cannabis, and tobacco), imprisonment, sex work, and homelessness in high-income countries; interventions that affect health or the social determinants of health; no comparators were specified; any health or social outcome was considered. We retained 272 relevant full-text articles which were divided equally among authors SL, NM, RWA, AH, AS, and NH to assess for inclusion. All articles that met the PICO criteria and reported on a unique intervention were included. For cases in which more than one review was available for a specific topic, we used the following hierarchy of evidence to select the review for inclusion: Cochrane review, systematic review with meta-analysis of randomised controlled trials, systematic review without meta-analysis of randomised controlled trials, systematic review of observational studies only. In view of the breadth and diversity of interventions included in this Review, a narrative approach was selected as the most appropriate synthesis method.

Key messages

- People who are excluded from mainstream society, such as those experiencing homelessness, imprisonment, drug addiction, and sex work, have considerably higher rates of disease, injury, and premature mortality than the general population. Services need to tackle the so-called tri-morbidity of physical and mental illness, and addiction. Multiple evidence-based individual and structural interventions are available to prevent and address the excess burden of disease in these populations, but the need to translate and scale effective practice into action is crucial. Removal of barriers to access and uptake of services can be accelerated by involving people who have experience of social exclusion.
- Extreme exclusion is associated with frequent use of acute services, providing a strong economic case for preventive action, which complements the compelling social justice case. Research on routes into homelessness has revealed a high prevalence of childhood trauma, including exposure to abuse, neglect, domestic violence, and parental mental ill-health and substance use disorders. These adverse life experiences have a strong social gradient, such that the highest risks are found in low-income populations. The most effective upstream prevention policy is likely to be reduction of material poverty and deprivation, especially among families with children who are at high risk of maltreatment.
- Gaps in knowledge remain, particularly around interventions to improve upstream determinants of social inclusion, such as employment and education, which are also instrumental to long-term recovery from social exclusion. People who have experienced exclusion have identified appropriate housing as the most important intervention, and systematic reviews have established the effectiveness of this intervention for improving health and social outcomes.

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See Online for appendix

Review. Full search terms are shown in the appendix. Additionally, we report a public engagement workshop that included people with experience of social exclusion, which aided the interpretation of the review findings (panel 1).

Effective inclusion health interventions

We identified 272 potentially relevant systematic reviews of interventions with an effect on health or the social determinants of health for people with experience of homelessness, substance use disorders, imprisonment, or sex work in high-income countries (figure 1). We included 77 systematic reviews in the final review, including 17 Cochrane reviews, 49 reviews that included one or more randomised controlled trials, and 11 reviews of exclusively observational research (table 1).

Men aged 30–49 years accounted for a high proportion of participants in many of the studies we reviewed and in the literature about homelessness, substance use disorders, and imprisonment more broadly.¹ However, age-specific and sex-specific interventions might sometimes be more appropriate because the epidemiology of excluded men is likely to differ from that of women and young people⁷⁸—eg, Aldridge and colleagues² showed that women have higher standardised all-cause mortality ratios than men. We have therefore presented interventions specifically tailored to women and young people (<25 years) separately.

Pharmacological interventions

We identified pharmacological interventions for substance use disorders, dual diagnosis (mental illness and substance use disorders), and infectious diseases. Inclusion health target populations have an increased risk of tuberculosis, hepatitis C, and HIV infection,² for which effective pharmacotherapies are available. However, these individuals experience numerous barriers to treatment engagement and adherence. A systematic review¹⁸ of HIV treatment adherence measures for people with substance use disorders found that directly observed therapy, opioid replacement therapy (for opioid dependence), contingency management (vouchers or material incentives for adherence), and multicomponent interventions delivered by a nurse all improved therapy adherence and virological outcomes, but only for as long as the extra support continued. Similarly for tuberculosis, material incentives might improve short-term treatment adherence for people who are homeless, recently released from prison, or who use drugs, but more evidence is needed for long-term treatment compliance.¹⁷ Evidence¹⁹ suggests that stand-alone directly observed therapy is ineffective for improving tuberculosis treatment adherence among people with substance use disorders, but it can be an important component of broader case management interventions. Rates of treatment completion for hepatitis C infection are higher when opioid replacement therapy is provided concomitantly for people who inject drugs; outcomes are similar to trials done in the general population.²⁰ Further studies on the risk of re-infection are needed to assess the long-term effectiveness of hepatitis C treatment in people who inject drugs.²⁹ New short-course, direct-acting antiviral drugs for hepatitis C, with better efficacy, fewer contraindications, and more favourable side-effect profiles than traditional treatment regimens,³² seem promising and might promote better treatment engagement and adherence. However, to date no systematic reviews assessing these new treatments in inclusion health target populations have been done.

Opioid replacement therapy is highly effective for individuals with substance use disorders who are dependent on heroin and other opioids. Treatments include methadone maintenance therapy^{10,21} and buprenorphine maintenance therapy.¹¹ However, methadone maintenance programmes are better at retaining patients in treatment than buprenorphine maintenance programmes.¹¹ Insufficient evidence exists to support widespread use of naltrexone for opioid dependency either orally,²² or by slow release injection.¹² Detoxification is also unsupported as most patients relapse to opioid use after slow tapering of methadone¹³ or buprenorphine.²³ Opioid replacement therapy is also beneficial for reducing illicit opioid use and risk behaviours in prison, and for reducing criminal activity.^{14,24} For deeply entrenched heroin-dependent patients who continue to use illicit heroin during standard opioid replacement therapy, meta-analyses²⁵ of randomised

controlled trials support the use of supervised injectable heroin, although this requires more intensive clinical supervision because of safety concerns. Opioid replacement therapy has also been shown to reduce HIV transmission.³⁰ For individuals in whom opioid replacement therapy is disrupted because of brief incarceration, the risk of contracting hepatitis C is significantly increased.²⁴ Pharmacological treatment to reduce psychostimulant dependency, such as cocaine or methamphetamine use, is ineffective.^{15,16,26,27}

Mental illness and substance use disorders commonly co-occur. Long-acting injectable antipsychotics are effective for people with schizophrenia and substance use disorders with improvements in psychopathology, relapse prevention, and rates of re-admission to hospital.²⁸ A 2012 review³¹ has shown that individuals in prison with substance use disorders and mental health problems have a high risk of iatrogenic morbidity and mortality as a result of high dosing, polypharmacy, and other poor practices.

Psychosocial interventions

Literature on psychosocial interventions has primarily considered substance use disorders and mental health in the community and within the criminal justice system. The literature tends to support a multimodal approach,³⁶ but insufficient evidence exists to identify the most effective intervention. A 2013 Cochrane review³³ of 32 randomised controlled trials assessed psychosocial interventions to treat substance use disorders in people with severe mental illness. The authors reviewed long-term integrated care, case management, cognitive behavioural therapy plus motivational interviewing, cognitive behavioural therapy alone, motivational interviewing alone, skills training, and contingency management (vouchers and material incentives). No intervention was found to be superior for treatment retention, substance use disorders, or mental health among people with severe mental illness. Overall, contingency management seems to be the most promising for promoting behavioural change for people who use cocaine and other psychostimulants.^{34,37–39} Motivational interviewing and cognitive behavioural therapy might also improve drug use and mental health outcomes when used in combination.^{34,40,41}

Combined motivational interviewing, cognitive behavioural therapy, and contingency management have been shown to be effective for prevention of reincarceration when used in the context of therapeutic communities (an intense supportive residential intervention designed to isolate individuals from outside influences).³⁵ Mindfulness meditation has been assessed in the context of substance use disorders in the community and in prison settings to improve mental wellbeing, but the evidence is inconclusive.^{42,43} Peer support interventions in criminal justice settings reduced risk behaviours⁴⁴ and improved mental health, substance use disorders, and health service engagement.⁴⁵

Panel 1: Engagement with people who have experienced social exclusion

We held a public engagement workshop on Sept 17, 2015, at University College London (London, UK), to involve people with experience of social exclusion and marginalisation as co-researchers in the interpretation and writing up of this Review. To identify and access people to participate, we worked with Groundswell, which is a charity that enables people who are homeless and vulnerable to take more control of their lives, have a greater influence on health and social care services, and to be more involved in our community. The workshop included 16 individuals with experiences of social exclusion, such as homelessness, addiction, or incarceration, who volunteer as homeless health peer advocates with Groundswell, four academic researchers, two service providers, and two non-participant observers who documented the workshop. Lunch and refreshments were provided and a £20 voucher was offered to the volunteer peer advocates at the end of the day (ie, it was not an incentive to attend). We developed a range of activities that involved all participants as equals to explore the following five objectives:

- To increase understanding about the meaning of the term inclusion health
- To increase awareness of health statistics for inclusion health target populations and to examine views about data collection and surveillance to improve the health of these groups
- To share positive stories about using health and other services to identify common themes that are beneficial for improving health
- To understand which interventions are most important to people with experience of social exclusion and to compare these against the set of interventions identified in our literature review
- To identify key stakeholders that can make a difference to the health of inclusion health target populations

Case management

Case management aims to improve the coordination and delivery of health and social care services and can be most simply understood by its functions: assessment, planning, linking health and social services, monitoring, and advocacy.⁴⁶ Evidence for the effectiveness of case management is broad, and interventions are heterogeneous. For substance use disorders, case management has been shown to improve links with services⁴⁶ and treatment processes,⁴⁹ but little evidence exists overall for a reduction in drug use and health-related outcomes.^{46,49} In homeless populations, case management was associated with improvements in mental health symptoms and substance use disorders compared with usual care.⁴⁷ Case management with assertive community treatment (multidisciplinary team with low caseloads, community-based services, and 24 h coverage) reduced homelessness, with a greater improvement in psychiatric symptoms compared with standard case management for the treatment of homeless people with severe mental illness.^{47,48}

Disease prevention

Research on prevention of poor health outcomes largely consists of harm reduction interventions for people with substance use disorders, such as needle and syringe programmes, and screening and vaccination for blood-borne viruses, which are more prevalent in inclusion health target populations than the general population.² The risk of HIV infection might be reduced by as much

For more on Groundswell please see www.groundswell.org.uk

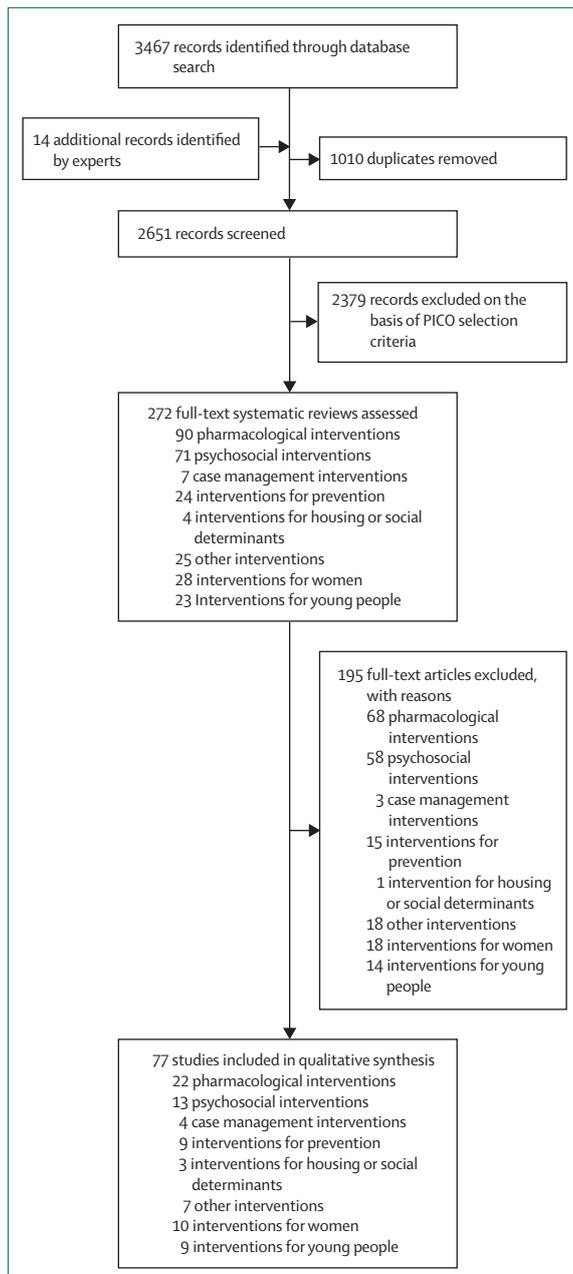


Figure 1: Study selection

PICO=populations, interventions, comparators, outcomes.

as a third among people with substance use disorders participating in needle and syringe programmes.⁵⁴ Multicomponent harm reduction programmes, including needle and syringe programmes, behavioural interventions, treatment for substance use disorders, and syringe disinfection have been shown to reduce the risk of hepatitis C infection by up to 75%, although single component interventions are minimally effective.⁵⁰ The use of mobile outreach to deliver needle and syringe programmes is more effective than static

programmes in younger people and individuals with a higher risk profile.⁵¹

Opioid overdose prevention programmes involve training people with substance use disorders and their contacts to recognise overdose and administer naloxone to reverse the effects of opioids. Studies have reported 85–100% survival after naloxone administration for overdose, and areas with high uptake of opioid overdose prevention programmes have fewer heroin overdose-related deaths.⁵⁵ Supervised injecting sites—where trained medical personnel provide harm reduction equipment and supervise drug consumption—have also been shown to reduce overdose deaths and ambulance call-outs and decrease unsafely discarded needles, public injecting, and needle sharing. Supervised injecting sites are not associated with increases in crime, or the number of people injecting drugs.⁵⁶

Targeted screening in primary care, training of primary care practitioners, use of dried blood spot testing, and outreach all improve uptake of hepatitis C virus testing.⁵⁷ HIV risk reduction interventions, including screening programmes, psychosocial interventions, and opioid replacement therapy, increase testing uptake for HIV and decrease high-risk sexual and injecting behaviours among people in contact with the criminal justice system.⁵² Hepatitis B vaccination effectively prevents infections when delivered in prisons.⁴⁵ Chest x-ray screening is a good tool for the identification of individuals with active tuberculosis among homeless populations.⁵³

Housing and social determinants

Housing First is a well established intervention developed for people who are homeless with mental health and substance use problems.⁵⁸ By contrast to treatment first models (ie, usual care), Housing First provides individuals with housing and subsequently attempts to engage them in mental health services, substance dependency treatment, and other services. A systematic review⁵⁸ of randomised controlled trials of this intervention in the USA, Canada, and Europe significantly improved stable housing status and quality of life, and reduced contacts with the criminal justice system. However, evidence was mixed for improving mental health, substance use, and community functioning outcomes compared with usual treatment. Another review⁵⁹ of housing interventions (including Housing First and other models) found that provision of housing improved sustained housing after hospital discharge, decreased substance use and relapses from periods of substance abstinence, decreased health services use, increased housing tenure, and improved health outcomes of homeless populations with HIV.

Occupational therapy might help to increase education, employment, and life skills among people experiencing homelessness.⁶⁰ The Individual Placement Scheme model of supported employment in ordinary workplaces was positively evaluated in a 2013 Cochrane review⁶¹ for people with severe and enduring mental health problems,

and might also be beneficial for inclusion health target populations more broadly.

Other interventions

Respite care (ie, short-term recuperative care for homeless individuals after hospital discharge) can reduce the number of future hospital admissions and use of emergency departments in homeless populations.⁶² Interventions delivered via computers, mobile phone apps, and the internet provide promising alternative health-care delivery

models, and a systematic review⁶³ of computer-based interventions for substance use disorders found that some measures of substance use were improved along with increased motivation for behavioural change. Physical exercise interventions can improve outcomes among people with substance use disorders, including significant increases in abstinence rates and improvements in withdrawal symptoms, anxiety, and depression.⁶⁴ Complementary and alternative therapies, such as acupuncture,⁶⁵ Chinese herbal medicine,⁶⁶ and yoga,⁶⁷ also show potential

	Homeless individuals	Individuals with substance use disorders	Prison populations	Sex workers
Pharmacological				
Cochrane systematic reviews	..	Mattick et al (2009), ³⁰ Mattick et al (2014), ³¹ Lobmaier et al (2008), ³² Amato et al (2013), ³³ Perry et al (2013), ³⁴ Pani et al (2010), ³⁵ Minozzi et al (2015) ³⁶	Perry et al (2013) ³⁴	..
Systematic reviews including one or more randomised controlled trials	Binford et al (2012) ³⁷	Binford et al (2012), ³⁸ Lutge et al (2015), ³⁷ Karumbi et al (2015), ³⁹ Dimova et al (2013), ²⁰ Bao et al (2009), ²¹ Adi et al (2007), ²² Horspool et al (2008), ²³ Hedrich et al (2012), ²⁴ Strang et al (2015), ²⁵ Castells et al (2007), ²⁶ Kishi et al (2013), ²⁷ Koola et al (2012) ³⁸	Lutge et al (2015), ³⁷ Hedrich et al (2012) ²⁴	..
Systematic reviews of observational studies only	..	Aspinall et al (2013), ²⁹ MacArthur et al (2012) ³⁰	Griffiths et al (2012) ³¹	..
Additional studies	..	Ryder et al (2015) ³²	..	..
Psychosocial				
Cochrane systematic reviews	..	Hunt et al (2013), ³³ Knapp et al (2007), ³⁴ Perry et al (2015) ³⁵	Perry et al (2015) ³⁵	..
Systematic reviews including one or more randomised controlled trials	..	De Witte et al (2014), ³⁶ Dutra et al (2008), ³⁷ Prendergast et al (2006), ³⁸ Farronato et al (2013), ³⁹ Cleary et al (2009), ⁴⁰ Lee et al (2008), ⁴¹ Zgierska et al (2009), ⁴² Katz et al (2013) ⁴³	Bagnell et al (2015), ⁴⁴ Kouyoumdjian et al (2015) ⁴⁵	..
Systematic reviews of observational studies only	..	..	..	..
Case management				
Cochrane systematic review	..	Hesse et al (2007) ⁴⁶	..	..
Systematic reviews including one or more randomised controlled trials	Hwang et al (2005), ⁴⁷ Coldwell et al (2007) ⁴⁸	Rapp et al (2014) ⁴⁹	..	..
Systematic reviews of observational studies only	..	..	..	..
Disease prevention				
Cochrane systematic reviews	..	..	..	..
Systematic reviews including one or more randomised controlled trials	..	Hagan et al (2011), ⁵⁰ Jones et al (2010) ⁵¹	Kouyoumdjian et al (2015), ⁴⁵ Underhill et al (2014) ⁵²	..
Systematic reviews of observational studies only	Paquette et al (2014) ⁵³	Aspinall et al (2014), ⁵⁴ Clark et al (2014), ⁵⁵ Potier et al (2014), ⁵⁶ Jones et al (2014) ⁵⁷	..	..
Housing and social determinants				
Cochrane systematic review	..	..	..	..
Systematic reviews including one or more randomised controlled trials	Woodhall-Melnik et al (2016), ⁵⁸ Fitzpatrick-Lewis et al (2011) ⁵⁹	Woodhall-Melnik et al (2016), ⁵⁸ Fitzpatrick-Lewis et al (2011) ⁵⁹	..	..
Systematic reviews of observational studies only	Thomas et al (2011) ⁶⁰	..	..	..
Additional studies	Kinoshita et al (2013) ⁶¹	..	..	..

(Table 1 continues on next page)

	Homeless individuals	Individuals with substance use disorders	Prison populations	Sex workers
(Continued from previous page)				
Other interventions				
Cochrane systematic reviews				
Systematic reviews including one or more randomised controlled trials	Doran et al (2013) ⁶²	Moore et al (2011), ⁶³ Wang et al (2014), ⁶⁴ Liu et al (2009), ⁶⁵ Liu et al (2009), ⁶⁶ Posadski et al (2014) ⁶⁷	..	..
Systematic reviews of observational studies only	..	Walton-Moss et al (2013) ⁶⁸	..	..
Interventions tailored to women				
Cochrane systematic reviews				
Systematic reviews including one or more randomised controlled trials	Speirs et al (2013), ⁷¹ Jonker et al (2015) ⁷²	Perry et al (2015), ⁶⁹ Terplan et al (2015) ⁷⁰	Perry et al (2015) ⁶⁹	..
Systematic reviews of observational studies only	..	Niccols et al (2010), ⁷³ Milligan et al (2010), ⁷⁴ Milligan et al (2011), ⁷⁵ Niccols et al (2012), ⁷⁶ Niccols et al (2012) ⁷⁷	Bartlett et al (2015) ⁷⁸	..
Additional studies	..	..	..	Kerrigan et al (2015) ⁷⁹
Interventions tailored to young people				
Cochrane systematic reviews				
Systematic reviews including one or more randomised controlled trials	Coren et al (2013) ^{80*}	Coren et al (2013), ^{80*} Minozzi et al (2014), ⁸¹ Minozzi et al (2014) ⁸²	Macdonald et al (2008) ^{83*}	..
Systematic reviews of observational studies only	Altena et al (2010), ⁸⁴ Hossain et al (2015) ^{85*}	Hossain et al (2015), ^{85*} Tanner-Smith et al (2013), ⁸⁶ Carney et al (2012) ⁸⁷	..	..
Systematic reviews of observational studies only	Everson-Hock et al (2011) ^{88*}	Everson-Hock et al (2011) ^{88*}	Everson-Hock et al (2011) ^{88*}	..
Additional studies that did not meet inclusion criteria for our systematic review have been included to express certain points from the literature that could not be represented by the review papers. *These studies on young (≤25 years) inclusion health populations do not readily fit into subpopulation categories for adult inclusion health populations and have been classified here on the basis of the outcomes reported—eg, street-connected children, ^{80,85} children in foster care, ⁸³ and looked-after children ⁸⁸ might transiently use substances, be unstably housed, and engage in criminal activity and risky sexual behaviours and would be at very high risk of homelessness, substance use disorders, imprisonment, and sex work (thus justifying their inclusion in this Review), although it would be inappropriate to classify them as homeless individuals, prisoners, sex workers, or individuals with substance use disorder.				
Table 1: Systematic reviews included in our Review classified by intervention type and inclusion health subpopulation				

improvements in outcomes for substance use disorders, but studies were heterogeneous and of varying quality; thus, establishing overall conclusions about effectiveness is difficult. Observational studies have found potentially positive effects of religion and spirituality on substance use disorders recovery, but little evidence is available from randomised trials, and most of the data published previously is of low methodological quality.⁶⁸

Interventions tailored to women

Systematic reviews on tailored interventions for women focused on psychosocial therapies, case management or integrated programmes, and advocacy and empowerment. Interventions were rarely delivered in isolation, and pharmacological treatments, particularly for substance use disorders, were also described.

Educational interventions, cognitive behavioural therapy, and motivational interviewing improved psychological, behavioural, and cognitive outcomes among women who are homeless.⁷¹ For women in criminal justice settings, a range of psychological therapies reduced depression and trauma, but not global assessments of mental health.⁷⁸ Psychosocial interventions improved mental health and social outcomes and decreased recurrent physical abuse

among women seeking shelter from a violent intimate partner.⁷² However, two Cochrane reviews^{69,70} found psychosocial therapies to be as effective as standard comprehensive care for reducing re-arrest rates and drug use among female offenders and for improving treatment outcomes and birth outcomes for pregnant women in outpatient drug treatment programmes.

Therapeutic communities—an intense supportive residential intervention designed to isolate individuals from outside influences—seem to be effective for reducing re-incarceration and re-arrest rates,⁶⁹ preventing women from returning to drugs or a violent sexual partner, motivating women to make positive changes, and improving psychological wellbeing.⁷¹ This intervention recognises trauma as an important aspect of recovery and uses a gender-specific and whole-person approach.⁶⁹ Therapeutic communities have been most commonly used in drug rehabilitation, low-risk prison populations, and for women seeking shelter from intimate partner violence and are important for retaining women in treatment, for isolating and sheltering them from outside influences, and as a means to retain custody of children.⁷¹

Case management also seems beneficial for women, particularly when motherhood services are incorporated.⁷³

Five systematic reviews^{73–77} have been published examining the effectiveness of integrated programmes that include on-site pregnancy, parenting, or child-related services alongside substance use disorders services. Results from meta-analyses suggest that integrated programmes have an advantage when compared with non-integrated programmes for the improvement of maternal mental health,⁷³ and are effective in reducing maternal substance use disorders, but less so than non-integrated programmes.⁷⁴ Furthermore, integrated programmes might have a small advantage compared with non-integrated programmes on length of stay, but not in substance use disorders treatment completion;⁷⁵ they might also improve parenting skills⁷⁶ and significantly improve child outcomes with a small advantage when compared with non-integrated programmes overall.⁷⁷ By contrast, Perry and colleagues⁶⁹ found that among female offenders, case management (characterised by reduced caseloads, specialised probation officer training, and efforts to increase contact between probation officer and probationer) did not reduce self-reported drug use or re-arrest rates compared with standard parole, although re-incarceration rates were reduced.

Research on intense advocacy interventions for women who are homeless in the USA and UK has shown reductions in psychological distress, health-care use, and drug and alcohol use, and improvements in self-esteem.⁷¹ In our Review, we did not find any systematic reviews that assessed individual or structural interventions for sex workers in high-income countries. One systematic review and meta-analysis⁷⁹ of HIV prevention among establishment-based and non-establishment-based female sex workers in low-income and middle-income countries found that community empowerment interventions resulted in a significant decrease in the prevalence of HIV and other sexually transmitted infections and a significant increase in prevalence of condom use with both regular and new clients. These approaches warrant further investigation in high-income settings.

Interventions tailored to young people

Little evidence exists for the effectiveness of tailored interventions that address the broad needs of socially excluded young people (eg, trust, subsistence, living skills, family or peer support, and safety).⁸⁴ A 2016 Cochrane review⁸⁰ examined a range of interventions compared with standard care for street-connected children and young people (children who work or sleep, or both, on the streets and might not necessarily be adequately supervised or directed by responsible adults). The interventions included brief motivational interviewing, case management, group-based interventions (sex-specific), family interventions, community reinforcement, HIV treatment, and a psychosocial mental health intervention. The primary outcomes of the review—*inclusion and re-integration*—were not measured in any of the reviewed

studies, and no consistent results were found within the domains of psychosocial health, substance use disorders, and high-risk sexual behaviour. The authors did a subsequent systematic review and found that length or quality of service engagement did not account for the absence of a significant difference between interventions developed specifically for street-connected young people (<24 years) and standard services. The authors noted that by contrast, qualitative research findings consistently emphasise that young people appreciate engagement-related aspects of interventions, such as safe environments and caring relationships, indicating their value irrespective of other outcomes.⁸⁵

Although conclusive evidence is scarce, potentially promising results have been reported for family-based therapy,⁸⁶ cognitive behavioural therapy,⁸⁴ and brief interventions⁸⁷ for a range of outcomes for young people. Foster care might help to reduce criminal activity and improve mental health outcomes for children in care;⁸³ however, no evidence-based transition support services are available for looked-after young people coming towards the end of care.⁸⁸ Detoxification⁸¹ and opioid replacement therapy⁸² for opioid dependency have been investigated in adolescents, but results were inconclusive. The authors note that the paucity of evidence might be a result of the practical and ethical difficulties of trials that involve young people.

Putting the findings in context: views of experts by experience

People with experience of social exclusion, such as homelessness, addiction, or incarceration—known as experts by experience—collaborated on this paper through an engagement workshop with the research team to contextualise the review findings (panel 1). We explored inclusion health as a concept and discussed characteristics of target populations, barriers that lead to exclusion, and values and actions that promote inclusion (figure 2). Health statistics on target populations (as described by Aldridge and colleagues²) were discussed and informed conversations about why research was needed, data collection methods (new data *vs* collation of administrative data), consent, anonymisation, data security, and the so-called surveillance society. Overall, participants expressed positive attitudes towards enhancing research to improve services, including the use of linked electronic service records. Stakeholder analysis identified local governments, policy makers, health-care organisations, and the media as the most important groups for influencing the inclusion health agenda. The most important interventions, research gaps in the review findings, and the characteristics of inclusive services were also discussed. We formulated recommendations for practice and research according to the views expressed in the workshop and review findings (panel 2).

Workshop participants listed and categorised the interventions they felt were most important and then

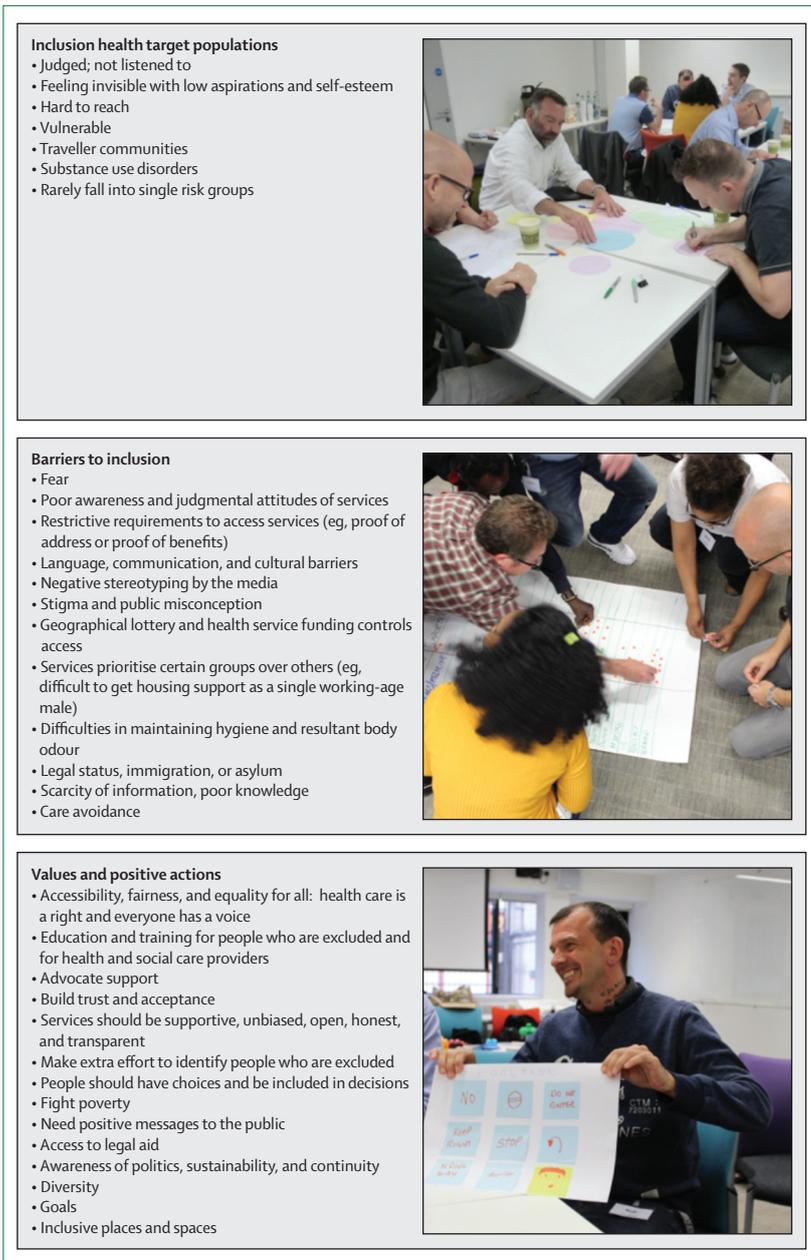


Figure 2: The meaning of inclusion health summarised by people with experiences of homelessness and other social exclusion risk factors

ranked these interventions alongside those identified in the literature review (table 2). Housing was ranked as the single most important intervention. Several gaps in the systematic review evidence were highlighted. Relatively few reviews of interventions to modify social determinants of health (housing, law, training and education, and employment) and advocacy interventions (especially peer-led interventions across health settings) were identified, despite these being the most valued interventions. Furthermore, no reviews of specialist

models of care (primary care, secondary care, and dental care) were found.

The engagement workshop also highlighted barriers and facilitators to receiving acceptable and inclusive services. Participants said that it was often good fortune or luck that enabled them to access a needed service and they highlighted the need to abolish restrictive requirements, such as proof of address or proof of receipt of state benefits, to access services. They also emphasised the need to reduce language, communication, and cultural barriers as well as fear, poor awareness, and judgmental attitudes of service providers. Participants felt that the media should be encouraged to promote positive messages about people experiencing exclusion to reduce stigma and stereotyping, which were perceived as barriers to accessing effective interventions.

Service user involvement and active engagement were highlighted as key factors to promote positive service experiences. Participants in the workshop said that “health care is a right and everyone should have a voice”. Coordination of care to help meet needs outside traditional health services, such as housing, welfare support, and legal aid, were also seen as ways to enable people to take control and responsibility for themselves and their health. As volunteer peer health advocates, participants also talked about the benefits of peer worker programmes for themselves and the clients they support to access health care. To make services effective and inclusive, participants expressed that this often involves “going above the call of duty” and “meeting people where they’re at”. These opinions indicate that working with inclusion health target populations requires active engagement and might necessitate service providers going beyond what might be expected from their role. The following were key principles of services that were valued by participants: provide ample time and patience to really listen; strive to develop trust and acceptance; provide supportive, unbiased, open, honest, and transparent services in inclusive spaces and places; encourage clients to accept personal responsibility for health; allow clients to take ownership, have choices, and participate in decisions; and above all, promote accessibility, fairness, and equality.

Service planning implications

This Review identified several interventions that have been reported to be effective for socially excluded populations (panel 3). Most of the research has been done in the USA. Interventions with the strongest evidence base aimed to address substance use disorders and harm reduction and, to a lesser extent, mental health and infectious diseases. Several overlapping themes of effective interventions emerged, including individual care coordination of multicomponent interventions, active engagement, service user involvement, low-barrier access, and service provider values and

Panel 2: Recommendations for practice, policy, and research

Practice

- Multicomponent interventions with coordinated care are most effective and should include both health and non-health services. Partnership working and service design around the whole person is necessary to achieve the best results.
- Service user involvement is essential to ensure equity, acceptability, and relevance of services and should be standard practice. Peer worker programmes are an acceptable and effective method to involve service users.
- Working with inclusion health target populations requires active engagement and might necessitate service providers going beyond what might be expected from their role. Trained community nurses and peer workers might be best suited for outreach and engagement. In view of the effectiveness of motivational interviewing, engagement should be psychologically informed.
- Barriers to accessing services, such as communication problems, bureaucracy, or stigma, should be addressed through ongoing staff training, technical assistance, and monitoring of adherence to protocols. Additionally, the media should be encouraged to promote more positive messages to the public about people experiencing exclusion.
- Providers and decision makers should be sensitised to the realities, needs, and rights of excluded people and efforts should be made to deliver high-quality comprehensive services in the community and on the streets, as well as in institutional settings such as prisons.
- When assessing health and wellbeing, use measurements that provide objective outcome evaluation but are also meaningful to the client group. Involvement of service users can help to develop appropriate measures.
- The values that should underpin services—expressed by people with experience of exclusion—include providing ample time and patience to really listen, striving to develop trust and acceptance, providing supportive, unbiased, open, honest, and transparent services in inclusive spaces and places, encouraging clients to accept personal responsibility for health, allowing clients to take ownership and participate in decisions, and above all, promote accessibility, fairness, and equality for all.
- Improved recording and sharing of data is required to support service planning, policy, and research.

Policy

- The most effective methods of preventing the adverse life experiences and disadvantages experienced by socially excluded populations is to reduce material poverty and deprivation, especially among families with children that are at high risk of maltreatment.

- Within proportionate universalist priority-setting frameworks (whereby actions to reduce inequalities are population-wide, but the amount of investment is proportionate to the level of disadvantage), excluded groups should be highly prioritised, reflecting the intensity of their needs and exceptionally poor outcomes.
- National and local social and health policies for assisting inclusion health target populations should be based on personalisation and deinstitutionalisation.
- The provision of suitable and stable housing in ordinary community settings should be an overriding policy objective in strategies that address social exclusion.

Research

- Development of interventions, with consideration of the proposed recommendations for practice, is needed across the spectrum of health needs described by Aldridge and colleagues.²
- Intervention development is also needed to modify the social determinants of health, such as housing, law, training and education, and employment.
- Peer support is a promising intervention to increase advocacy and improve outcomes across multiple domains of health. More research is needed to understand the effect of peer-led interventions for peer workers and their clients, their cost-effectiveness, and how peer interventions can be used in other settings.
- Research on specialist and mainstream models of care (primary care, secondary care, and preventive care, including dental care) is needed to understand how best to provide services for excluded groups at a population level.
- Research and services mainly focus on immediate health needs and little evidence exists on how to prevent health and social problems and promote reintegration and recovery after social exclusion.
- Research is needed on the mechanisms of behavioural change as well as outcomes because little is known about methods of change that promote (or inhibit) engagement with and adherence to interventions.
- Research is needed on socially excluded women, and female, male, and transgender sex workers for whom there were no systematic reviews of effective interventions in high-income countries.
- Research on how to support excluded young people (<25 years) is also urgently needed, and particularly, how to support individuals who are transitioning from the children's care system to adult services.
- Research using routine electronic service data, ideally with linked datasets, can be used to answer some of these questions.

training. Practical recommendations for service providers based on these themes and views expressed in the workshop are provided in panel 2.

Generally, we found multicomponent interventions for inclusion health target populations had higher effectiveness than stand-alone interventions.^{18,47,48,50} Most of

	Rank	Method by which intervention was identified
Housing	1	Workshop and evidence review
Advocacy	2	Workshop and evidence review
Psychosocial	3	Evidence review
Services for young people	4	Evidence review
Mental health	4	Workshop and evidence review
General practitioners and primary care	4	Workshop
Drugs and alcohol	5	Workshop and evidence review
Legal	5	Workshop
Training	5	Workshop and evidence review
Employment	6	Workshop and evidence review
Pharmacological	7	Evidence review
Case management	7	Evidence review
Specialist care	7	Workshop
Disease prevention	8	Evidence review
Physical health	8	Workshop
Interventions tailored to women	9	Evidence review
Reintegration	10	Workshop
Dental care	10	Workshop
Other interventions	11	Evidence review

Table 2: Inclusion health interventions ranked in order of importance by participants in the research engagement workshop

these multimodal approaches involved individual care coordination or case management with multidisciplinary teams. Examples of this approach include integrated mental health and drug treatment³³ and integrated programmes for women that include on-site pregnancy, parenting, or child-related services alongside substance use disorder services.⁷³ Delivering effective coordinated care requires high-level partnership working across settings to permit cross-location interventions and to ensure longer-term continuity of care.⁷⁸

Active engagement involves using a non-judgmental approach, ensuring confidentiality, providing a supportive interpersonal environment,⁸⁵ creating safe communal spaces, and identifying common priorities, needs, and goals⁷⁹ and should be considered best practice in inclusion health. Peer workers^{44,89} and community nurses⁷¹ with specialised training might be particularly well placed to act as outreach and inreach personnel to actively engage people and to advocate on their behalf. Active engagement might be particularly important for young people (<25 years)—eg, mobile vans providing needle and syringe programmes often attract younger intravenous drug users.⁵¹ Involvement of service users is also important to reduce inequities in access to services. Community empowerment, supporting service-user led organisations, and peer advocacy are effective ways to involve inclusion

health target populations.⁷⁹ A growing evidence base^{44,89} shows that peer support programmes have positive effects on both peer workers and individuals supported by them.

Health-care providers, police, and social services need to be aware of the realities, needs, and rights of people experiencing exclusion.⁷⁹ The provision of context-specific services requires ongoing staff training, technical assistance, and monitoring of adherence to protocols.⁶⁹ Other studies⁷⁸ highlight the importance of delivering interventions in the community that cater holistically to the needs of target populations rather than only providing services in institutions such as hospitals or prisons.⁷⁸ Assessment measures are required that meaningfully reflect individuals' own sense of health and wellbeing, as well as providing objective outcome evaluation.⁷⁸

Specialised models of care, which aim to exemplify all of these overlapping themes, are highly promising but have yet to be systematically reviewed. Specialist care coordination for homeless people admitted to hospital—the Pathway model^{90,91}—is being adopted by hospitals across the UK and internationally. Another approach is Street Medicine, a fully integrated homeless health-care and advocacy model involving mobile outreach teams that originated in the USA, which is also expanding internationally.⁹²

More evidence is needed for targeted interventions across the full spectrum of health problems experienced by inclusion health target populations,² particularly for problems that could be improved through more equitable access to prevention and early intervention, such as cardiovascular disease and cancer. Evidence for effective tobacco cessation interventions might be particularly beneficial in this regard. Little evidence is available for interventions that affect upstream determinants of poor health, such as employment and education. No specific interventions for female sex workers in high-income countries were identified in our Review or workshop, although sex-specific interventions were identified for excluded women. These interventions are also likely to benefit sex workers because research has highlighted a high degree of overlap between sex work and other exclusion risk factors, such as drug use and homelessness.¹ Definitive evidence is scarce for young people who are socially excluded. Recommendations for future research are summarised in panel 2.

Policy implications

Coordinated policies at the national and local level are required to address the material and the health needs of inclusion health target populations,¹ consistent with a so-called whole-of-society approach to addressing health inequities and the reversal of exclusionary processes.⁹³ Research on routes into homelessness has revealed that childhood trauma is common, including exposure to abuse, neglect, domestic violence, and parental mental ill-health and substance use disorders.¹

Panel 3: Effective interventions for inclusion health populations

Pharmacological interventions

- Methadone and buprenorphine are effective for treating opioid dependency; however, methadone is more effective at retaining people in treatment. Supervised injectable heroin might also be indicated for people refractory to standard treatment. No other effective treatments for substance use disorders were identified.
- Long-acting injectable antipsychotics are effective for people with schizophrenia and substance use disorders.
- Hepatitis C treatment is as effective among people who inject drugs as the general population. Retention in treatment is improved when treatment of substance use disorders is provided simultaneously. New short-term antiviral drugs are highly promising for inclusion health target populations.
- HIV treatment outcomes are improved by directly observed therapy, medication assisted therapy, contingency management, and multicomponent nurse-delivered interventions.
- Adherence to tuberculosis treatment is improved in the short term by incentives, but stand-alone directly observed therapy is ineffective without case management.

Psychosocial interventions

- Psychosocial interventions are most effective when provided in combination, although no clear evidence indicates the optimum intervention.
- Contingency management (ie, vouchers or incentives), motivational interviewing, and cognitive behavioural therapy have shown some benefits for substance use disorders and in therapeutic communities for reincarceration.
- Mental health and drug treatment services might be more effective when provided in an integrated setting.

Case management

- Case management can improve and enhance links with services and improve mental health symptoms. Evidence is mixed about whether this approach improves outcomes in substance use disorders and other health-related outcomes.
- When used with assertive community treatment, case management might also help to reduce homelessness.

Disease prevention

- Harm reduction schemes, including needle and syringe programmes, substitution programmes, and safe injecting site programmes can reduce risk behaviour, risk of blood-borne viruses, and overdose risk. Generally, multicomponent interventions are more effective than stand-alone interventions. Interventions in community and criminal justice settings are effective and outreaching interventions can reach younger users and individuals with greater risk-taking behaviours. Training drug users to recognise opiate overdose and administer naloxone can reduce risk of fatal overdose.

- Uptake of screening for hepatitis C can be increased through targeted screening in primary care, use of dried blood spots instead of venous blood samples, and outreach.
- In criminal justice settings, HIV risk reduction interventions and hepatitis B vaccination are beneficial.

Housing and social determinants

- Provision of housing improves a range of health and social outcomes for homeless populations, particularly among those experiencing mental illness and substance use disorders.
- Occupational therapy might increase education, employment, and life skills among homeless populations.
- Supported work placements, which are effective for individuals with severe, long-term mental illness, might also help other socially excluded populations to secure employment.

Other interventions

- Medical respite can reduce the number of future hospital admissions and use of emergency departments in homeless populations.
- Computer-based interventions and physical exercise interventions might improve outcomes for substance use disorders. Complementary and alternative therapies and spirituality or religion might also have potentially positive effects, but more rigorous evidence is needed.

Women

- A variety of sex-sensitive interventions can improve the health and social outcomes of women, including structured counselling and social support, therapeutic communities, case management and integrated programmes, and advocacy and empowerment.
- Effective interventions for excluded women address the role of motherhood, trauma and violence, substance use disorders, and education and empowerment as key aspects for recovery.
- Interventions can be delivered in community and institutional settings to support women.

Young people (<25 years)

- Generally, evidence about young people who are excluded is scarce, but potentially promising results have been reported for family-based therapy, cognitive behavioural interventions, and brief interventions for a range of outcomes.
- Foster care might help to reduce criminal activity and improve mental health; however, no evidence-based transition support services are available for looked-after young people approaching the end of care.

A life-course approach that recognises the effect of this accumulation of disadvantages from an early age is therefore warranted.⁹³

Although inclusion health target populations account for a small proportion of the population in high-income countries, they have a considerably worse quality of life

than other disadvantaged groups.⁵ These populations also have much poorer health behaviours and outcomes, which can cause substantial harm to children—eg, substance use disorders.⁹⁴ In the context of inadequate investment in preventive services and interventions, inclusion health target populations frequently require costly acute services,⁵ providing a strong economic case for action to complement the compelling social justice case.⁹⁵ Within proportionate universalist priority-setting frameworks (in which actions to reduce inequalities are population-wide, but the amount of investment is proportionate to the level of disadvantage),⁹⁵ inclusion health target populations should be prioritised, reflecting the intensity of their needs and exceptionally poor health and social outcomes.

National and local policies should encapsulate the principles of good practice, including personalisation (defined as open-ended, persistent, flexible, and coordinated support),⁹ and also deinstitutionalisation (such that people have the option of staying in ordinary housing with the support that they need rather than being obliged to spend a period in hostels, refuges, or other congregate settings if that is not their wish).^{96,97} Housing First is an evidence-based model consistent with these principles.⁵⁸ Whole person⁹⁸ and, in appropriate cases, whole family⁹⁹ strengths-based health and social policies (in which individuals' strengths and abilities are emphasised) might also be beneficial to help inclusion health target populations recover from the multiple issues they experience.

Policy should recognise the root causes of exclusion in the structural disadvantages experienced by people, households, and communities living in persistent or recurrent poverty.⁵ Health inequalities result from social inequalities,⁹⁵ with the worst effects on people who experience the most extreme forms of material deprivation. Evidence from high-income countries indicates that the highest risks of homelessness,¹⁰⁰ persistent offending,¹⁰¹ and the most damaging drug problems,¹⁰² as well as their common childhood antecedents in abuse and neglect,¹⁰³ parental mental ill-health,^{104,105} and domestic violence,¹⁰⁶ are concentrated within low-income populations. The direction of causation between poverty and these adverse life experiences is sometimes obscured, and is very often bidirectional. However, in the UK, the underlying power of the structural drivers is revealed by spatial patterns that show high proportions of offenders, individuals with substance use disorders, and homeless people in areas of long-term economic decline and entrenched poverty.⁵ Economic modelling in the UK has estimated that two-thirds of all child protection service costs might be attributed to poverty effects,^{107,108} and evidence from experimental and quasi-experimental studies^{109,110} in the USA indicate that raising the income of families in poverty had a beneficial effect in reducing child maltreatment. Therefore, the most effective upstream

prevention policy is likely to be reduction of material poverty and deprivation among families with children who are at high risk of maltreatment.¹⁰⁸

Conclusion

This Review identified a wide range of interventions for inclusion health target populations. The focus on systematic reviews enabled identification of interventions for which a body of evidence existed, but this approach will have excluded effective interventions that have not yet been the subject of such reviews. Strong evidence exists for the effectiveness of some interventions, particularly in the area of drug treatment and harm reduction, whereas the evidence in other areas is generally of lower methodological quality. This disparity might reflect the pragmatic nature of many intervention studies, difficulties in randomising complex interventions, and restrictions in available funding. Nevertheless, the Review found a broad array of important opportunities to improve health through adequately funded services delivering individual and structural interventions on the basis of the best available current evidence. Upstream policy measures to reduce material poverty and deprivation are also needed to prevent extreme social and health inequalities from occurring in the first place. The views of people with experience of social exclusion and the delivery characteristics of the interventions identified across the literature can be used to guide practitioners to ensure services are not only effective, but also inclusive and equitable.

Contributors

NH conceived the initial idea and all authors contributed to the subsequent design of the paper. SL did the literature searches, conceived, facilitated, and summarised the engagement workshop, wrote the first draft, and coordinated the overall paper. SL, NM, RWA, AH, AS, and NH selected papers for inclusion in the review and summarised the literature. SF drafted the policy sections of the paper. All authors contributed to the main content of the manuscript and provided critical comments on the final draft, and read and approved the manuscript before submission. Representatives from Groundswell were also involved in drafting and approving the manuscript.

Declaration of interests

RWA reports grants from The Wellcome Trust and National Institute for Health Research, outside the submitted work. AH is a trustee of the Pathway charity. AS is the clinical lead for the Find & Treat service. PP serves as medical director of the Center for Inclusion Health and chairs the all-volunteer board of directors of the Street Medicine Institute. JW is the medical director of Operation Safety Net, and is the founder, a board member, and medical director of the Street Medicine Institute. SC is project manager at Groundswell UK. SF does social research for a wide range of charitable organisations and other funders, and received funding from the Joseph Rowntree Foundation (as part of their UK Anti-Poverty Strategy) and the Lankelly Chase Foundation (on severe and multiple disadvantage in England) during the conduct of this study. NH is medical director of the Pathway charity. SL and NM declare no competing interests.

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